AMENDMENTS TO THE CLAIMS

This listing of claims will replace all prior versions, and listings, of claims in the application:

1-15. (canceled)

16. (previously presented) An apparatus, comprising:

an input line to receive an X value and a Y value representing differences between a received location and a pre-determined constellation point associated with a Trellis decoder; and

a decoder to:

estimate a distance between the received location and the pre-determined constellation point based on one of the X and Y values, wherein said estimating comprises:

estimating the distance as the X value multiplied by a pre-determined value when the X value is larger than the Y value, and

estimating the distance as the Y value multiplied by the pre-determined value when the Y value is larger than the X value.

17. (canceled).

18. (previously presented) The apparatus of claim 16, wherein said estimating when the X value is larger than the Y value comprises:

left shifting the X value a pre-determined number of bits;

adding (i) the shifted X value to (ii) the X value multiplied by a pre-determined constant; and

right shifting the result of the addition a pre-determined number of bits.

19. (previously presented) The apparatus of claim 16, wherein said estimating when the Y value is larger than the X value comprises:

left shifting the Y value a pre-determined number of bits;

adding (i) the shifted Y value to (ii) the Y value multiplied by a pre-determined constant; and

right shifting the result of the addition a pre-determined number of bits.

20-23. (canceled)

24. (New) A method, comprising:

receiving via an input path an X value and a Y value representing differences between a received location and a pre-determined constellation point associated with a Trellis decoder;

estimating a distance between the received location and the pre-determined constellation point based on one of the X and Y values, wherein said estimating comprises:

estimating the distance as the X value multiplied by a pre-determined value when the X value is larger than the Y value, and

estimating the distance as the Y value multiplied by the pre-determined value when the Y value is larger than the X value; and

outputting via an output path an indication of the estimated distance.

25. (New) The method of claim 24, wherein said estimating when the X value is larger than the Y value comprises:

left shifting the X value a pre-determined number of bits;

adding (i) the shifted X value to (ii) the X value multiplied by a pre-determined constant; and

right shifting the result of the addition a pre-determined number of bits.

26. (New) The method of claim 24, wherein said estimating when the Y value is larger than the X value comprises:

left shifting the Y value a pre-determined number of bits;

adding (i) the shifted Y value to (ii) the Y value multiplied by a pre-determined constant; and

right shifting the result of the addition a pre-determined number of bits.

27. (New) A computer-readable storage medium having stored thereon instructions that when executed by a machine result in the following:

receiving via an input path an X value and a Y value representing differences between a received location and a pre-determined constellation point associated with a Trellis decoder;

estimating a distance between the received location and the pre-determined constellation point based on one of the X and Y values, wherein said estimating comprises:

estimating the distance as the X value multiplied by a pre-determined value when the X value is larger than the Y value, and

estimating the distance as the Y value multiplied by the pre-determined value when the Y value is larger than the X value; and

outputting via an output path an indication of the estimated distance.

28. (New) A system, comprising:

an apparatus, including:

an input line to receive an X value and a Y value representing differences between a received location and a pre-determined constellation point associated with a Trellis decoder; and

a decoder to:

estimate a distance between the received location and the pre-determined constellation point based on one of the X and Y values, wherein said estimating comprises:

estimating the distance as the X value multiplied by a pre-determined value when the X value is larger than the Y value, and

estimating the distance as the Y value multiplied by the pre-determined value when the Y value is larger than the X value; and

a communication interface.

29. (New) The system of claim 28, wherein the system is a modem.

30. (New) The system of claim 28, wherein the system is a digital subscriber line access multiplexer.

31. (New) The system of claim 28, wherein the apparatus an asynchronous digital subscriber line data pump.

32. (New) The system of claim 28, wherein the apparatus is a modem.

33. (New) The system of claim 28, wherein the communication interface is an Ethernet interface.

34. (New) The system of claim 28, wherein the communication interface is an asynchronous transfer mode interface.